

**Pt. 150, App. I**

**46 CFR Ch. I (10–1–08 Edition)**

Lignin liquor  
Liquid Streptomyces solubles  
l-Lysine solution  
N-Methylglucamine solution  
Naphthenic acid, sodium salt solution  
Potassium chloride solution  
Potassium thiosulfate solution  
Rosin soap (disproportionated) solution  
Sewage sludge, treated  
Sodium alkyl sulfonate solution  
Sodium hydrogen sulfite solution  
Sodium lignosulfonate solution  
Sodium polyacrylate solution<sup>2</sup>  
Sodium salt of Ferric hydroxyethylethylenediamine triacetic acid solution  
Sodium silicate solution<sup>2</sup>  
Sodium sulfide solution  
Sodium sulfite solution  
Sodium tartrates, Sodium succinates solution  
Sulfonated polyacrylate solutions<sup>2</sup>  
Tall oil soap (disproportionated) solution  
Tetrasodium salt of EDTA solution  
Titanium dioxide slurry  
Triisopropanolamine salt of 2,4-Dichlorophenoxyacetic acid solution  
Urea, Ammonium nitrate solution (not containing Ammonia)  
Urea, Ammonium phosphate solution  
Urea solution  
Vegetable protein solution (hydrolysed)  
Water

**FOOTNOTES TO TABLE II**

<sup>1</sup>Because of very high reactivity or unusual conditions of carriage or potential compatibility problems, this product is not assigned to a specific group in the Compatibility Chart. For additional compatibility information, contact Commandant (G-MSO), U.S. Coast Guard, 2100 Second Street, SW., Washington, DC 20593-0001. Telephone (202) 372-1425.

<sup>2</sup>See Appendix I—Exceptions to the Chart.

[CGD 88-100, 54 FR 40012, Sept. 29, 1989, as amended by CGD 88-100, 55 FR 17276, Apr. 24, 1990; CGD 92-100, 59 FR 17025, Apr. 11, 1994; CGD 94-902, 60 FR 34043, June 29, 1995; CGD 95-900, 60 FR 34049, 34050, June 29, 1995; CGD 96-041, 61 FR 50731, Sept. 27, 1996; USCG 2000-7079, 65 FR 67182, Nov. 8, 2000; USCG-2006-25697, 71 FR 55746, Sept. 25, 2006; USCG-2008-0906, 73 FR 56510, Sept. 29, 2008]

**APPENDIX I TO PART 150—EXCEPTIONS TO THE CHART**

(a). The binary combinations listed below have been tested as prescribed in Appendix III and found not to be dangerously reactive. These combinations are exceptions to the Compatibility Chart (Figure 1) and may be stowed in adjacent tanks.

Member of reactive group	Compatible with
Acetone (18) .....	Diethylenetriamine (7)
Acetone cyanohydrin (0) .....	Acetic acid (4)
Acrylonitrile (15) .....	Triethanolamine (8)
1,3-Butylene glycol (20) .....	Morpholine (7)
1,4-Butylene glycol (20) .....	Ethylamine (7)
gamma-Butyrolactone (0) .....	Triethanolamine (8)
Caustic potash, 50% or less (5).	N-Methyl-2-pyrrolidone (9)
	Isobutyl alcohol (20)
	Ethyl alcohol (20)
	Ethylene glycol (20)
	Isopropyl alcohol (20)
	Methyl alcohol (20)
	iso-Octyl alcohol (20)
Caustic soda, 50% or less (5)	Butyl alcohol (20)
	tert-Butyl alcohol, Methanol mixtures
	Decyl alcohol (20)
	iso-Decyl alcohol (20)
	Diacetone alcohol (20)
	Diethylene glycol (40)
	Dodecyl alcohol (20)
	Ethyl alcohol (20)
	Ethyl alcohol (40%, whiskey) (20)
	Ethylene glycol (20)
	Ethylene glycol, Diethylene glycol mixture (20)
	Ethyl hexanol (Octyl alcohol) (20)
	Methyl alcohol (20)
	Nonyl alcohol (20)
	iso-Nonyl alcohol (20)
	Propyl alcohol (20)
	iso-Propyl alcohol (20)
	Propylene glycol (20)
	Sodium chlorate solution (0)
	iso-Tridecanol (20)
tert-Dodecanethiol (0) .....	Acrylonitrile (15)
	Diisodecyl phthalate (34)
	Methyl ethyl ketone (18)
	iso-Nonyl alcohol (20)
	Perchloroethylene (36)
	iso-Propyl alcohol (20)
	Tall oil, crude
	Tall oil, fatty acid (34)
Dodecyl and Tetradecylamine mixture (7).	
Ethylenediamine (7) .....	Butyl alcohol (20)
	tert-Butyl alcohol (20)
	Butylene glycol (20)
	Creosote (21)
	Diethylene glycol (40)
	Ethyl alcohol (20)
	Ethylene glycol (20)
	Ethyl hexanol (20)
	Glycerine (20)
	Isononyl alcohol (20)
	Isophorone (18)
	Methyl butyl ketone (18)
	Methyl iso-butyl ketone (18)
	Methyl ethyl ketone (18)
	Propyl alcohol (20)
	Propylene glycol (20)
Oleum (0) .....	Hexane (31)
	Dichloromethane (36)
	Perchloroethylene (36)
1,2-Propylene glycol (20) .....	Diethylenetriamine (7)
	Polyethylene polyamines (7)
	Triethylenetetramine (7)
Sodium dichromate, 70% (0)	Methyl alcohol (20)
Sodium hydrosulfide solution (5).	Methyl alcohol (20)

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Member of reactive group	Compatible with
Sulfuric acid (2) .....	Iso-Propyl alcohol (20)
	Coconut oil (34)
	Coconut oil acid (34)
	Palm oil (34)
	Tallow (34)
Sulfuric acid, 98% or less (2)	Choice white grease tallow (34)

(b). The binary combinations listed below have been determined to be dangerously reactive, based on either data obtained in the literature or on laboratory testing which has been carried out in accordance with procedures prescribed in Appendix III. These combinations are exceptions to the Compatibility Chart (Figure 1) and may not be stowed in adjacent tanks.

Acetone cyanohydrin (0) is not compatible with Groups 1-12, 16, 17 and 22.

Acrolein (19) is not compatible with Group 1, Non-Oxidizing Mineral Acids.

Acrylic acid (4) is not compatible with Group 9, Aromatic Amines.

Acrylonitrile (15) is not compatible with Group 5 (Caustics).

Alkylbenzenesulfonic acid (0) is not compatible with Groups 1-3, 5-9, 15, 16, 18, 19, 30, 34, 37, and strong oxidizers.

Allyl alcohol (15) is not compatible with Group 12, Isocyanates.

Alkyl(C7-C9) nitrates (34) is not compatible with Group 1, Non-oxidizing Mineral Acids.

Aluminum sulfate solution (43) is not compatible with Groups 5-11.

Ammonium bisulfite solution (43) is not compatible with Groups 1, 3, 4, and 5.

Benzenesulfonyl chloride (0) is not compatible with Groups 5-7, and 43.

1,4-Butylene glycol (20) is not compatible with Caustic soda solution, 50% or less (5).

gamma-Butyrolactone (0) is not compatible with Groups 1-9.

C9 Resinfeed (DSM) (32) is not compatible with Group 2, Sulfuric acid.

Carbon tetrachloride (36) is not compatible with Tetraethylenepentamine or Triethylenetetramine, both Group 7, Aliphatic amines.

Catoxid feedstock (36) is not compatible with Group 1, 2, 3, 4, 5, or 12.

Caustic soda solution, 50% or less (5) is not compatible with 1,4-Butylene glycol (20).

1-(4-Chlorophenyl)-4,4-dimethyl pentan-3-one (18) is not compatible with Group 5 (Caustics) or 10 (Amides).

Crotonaldehyde (19) is not compatible with Group 1, Non-Oxidizing Mineral Acids.

Cyclohexanone, Cyclohexanol mixture (18) is not compatible with Group 12, Isocyanates.

2,4-Dichlorophenoxyacetic acid, Triisopropanolamine salt solution (43) is not compatible with Group 3, Nitric Acid.

2,4-Dichlorophenoxyacetic acid, Dimethylamine salt solution (0) is not compatible with Groups 1-5, 11, 12, and 16.

Diethylenetriamine (7) is not compatible with 1,2,3-Trichloropropane, Group 36, Halogenated hydrocarbons.

Dimethyl hydrogen phosphite (34) is not compatible with Groups 1 and 4.

Dimethyl naphthalene sulfonic acid, sodium salt solution (34) is not compatible with Group 12, Formaldehyde, and strong oxidizing agents.

Dodecylbenzenesulfonic acid (0) is not compatible with oxidizing agents and Groups 1, 2, 3, 5, 6, 7, 8, 9, 15, 16, 18, 19, 30, 34, and 37.

Ethylenediamine (7) and Ethyleneamine EA 1302 (7) are not compatible with either Ethylene dichloride (36) or 1,2,3-Trichloropropane (36).

Ethylene dichloride (36) is not compatible with Ethylenediamine (7) or Ethyleneamine EA 1302 (7).

Ethylidene norbornene (30) is not compatible with Groups 1-3 and 5-8.

2-Ethyl-3-propylacrolein (19) is not compatible with Group 1, Non-Oxidizing Mineral Acids.

Ethyl tert-butyl ether (41) is not compatible with Group 1, Non-oxidizing mineral acids.

Ferric hydroxyethylethylenediamine triacetic acid, Sodium salt solution (43) is not compatible with Group 3, Nitric acid.

Fish oil (34) is not compatible with Sulfuric acid (2).

Formaldehyde (over 50%) in Methyl alcohol (over 30%) (19) is not compatible with Group 12, Isocyanates.

Formic acid (4) is not compatible with Furfural alcohol (20).

Furfuryl alcohol (20) is not compatible with Group 1, Non-Oxidizing Mineral Acids and Formic acid (4).

2-Hydroxyethyl acrylate (14) is not compatible with Group 5, 6, or 12.

Isophorone (18) is not compatible with Group 8, Alkanolamines.

Magnesium chloride solution (0) is not compatible with Groups 2, 3, 5, 6 and 12.

Mesityl oxide (18) is not compatible with Group 8, Alkanolamines.

Methacrylonitrile (15) is not compatible with Group 5 (Caustics).

Methyl tert-butyl ether (41) is not compatible with Group 1, Non-oxidizing Mineral Acids.

NIAX POLYOL APP 240C (0) is not compatible with Group 2, 3, 5, 7, or 12.

o-Nitrophenol (0) is not compatible with Groups 2, 3, and 5-10.

Octyl nitrates (all isomers), *see* Alkyl(C7–C9) nitrates.

Oleum (0) is not compatible with Sulfuric acid (2) and 1,1,1-Trichloroethane (36).

Phthalate based polyester polyol (0) is not compatible with group 2, 3, 5, 7 and 12.

Polyglycerine, Sodium salts solution (20) is not compatible with Groups 1, 4, 11, 16, 17, 19, 21 and 22.

Propylene, Propane, MAPP gas mixture (containing 12% or less MAPP gas) (30) is not compatible with Group 1 (Non-oxidizing mineral acids), Group 36 (Halogenated hydrocarbons), nitrogen dioxide, oxidizing materials, or molten sulfur.

Sodium acetate, Glycol, Water mixture (1% or less Sodium hydroxide) (34) is not compatible with Group 12 (Isocyanates).

Sodium chlorate solution (50% or less) (0) is not compatible with Groups 1-3, 5, 7, 8, 10, 12, 13, 17 and 20.

Sodium dichromate solution (70% or less) (0) is not compatible with Groups 1-3, 5, 7, 8, 10, 12, 13, 17 and 20.

Sodium dimethyl naphthalene sulfonate solution (34) is not compatible with Group 12, Formaldehyde and strong oxidizing agents.

Sodium hydrogen sulfide, Sodium carbonate solution (0) is not compatible with Groups 6 (Ammonia) and 7 (Aliphatic amines).

Sodium hydrosulfide (5) is not compatible with Groups 6 (Ammonia) and 7 (Aliphatic amines).

Sodium hydrosulfide, Ammonium sulfide solution (5) is not compatible with Groups 6 (Ammonia) and 7 (Aliphatic amines).

Sodium polyacrylate solution (43) is not compatible with Group 3, Nitric Acid.

Sodium silicate solution (43) is not compatible with Group 3, Nitric Acid.

Sodium sulfide, hydrosulfide solution (0) is not compatible with Groups 6 (Ammonia) and 7 (Aliphatic amines).

Sodium thiocyanate (56% or less) (0) is not compatible with Groups 1-4.

Sulfonated polyacrylate solution (43) is not compatible with Group 5 (Caustics).

Sulfuric acid (2) is not compatible with Fish oil (34), or Oleum (0).

Tall oil fatty acid (*Resin acids less than 20%*) (34) is not compatible with Group 5, Caustics.

Tallow fatty acid (34) is not compatible with Group 5, Caustics.

Tetraethylenepentamine (7) is not compatible with Carbon tetrachloride, Group 36, Halogenated hydrocarbons.

1,2,3-Trichloropropane (36) is not compatible with Diethylenetriamine, Ethylenediamine, Ethyleaneamine EA 1302, or Triethylenetetramine, all Group 7, Aliphatic amines.

1,1,1-Trichloroethane (36) is not compatible with Oleum (0).

Trichloroethylene (36) is not compatible with Group 5, Caustics.

Triethylenetetramine (7) is not compatible with Carbon tetrachloride, or 1,2,3-Trichloropropane, both Group 36, Halogenated hydrocarbons.

Triethyl phosphite (34) is not compatible with Groups 1, and 4.

Trimethyl phosphite (34) is not compatible with Groups 1 and 4.

1,3,5-Trioxane (41) is not compatible with Group 1 (non-oxidizing mineral acids) and Group 4 (Organic acids).

[CGD 88–100, 54 FR 40012, Sept. 29, 1989 as amended by CGD 88–100, 55 FR 17277, Apr. 24, 1990; CDG 92–100, 59 FR 17026, Apr. 11, 1994; CGD 94–902, 60 FR 34043, June 29, 1995; CGD 95–900, 60 FR 34050, June 29, 1995; USCG 2000–7079, 65 FR 67182, Nov. 8, 2000]

#### APPENDIX II TO PART 150—EXPLANATION OF FIGURE 1

*Definition of a hazardous reaction*— As a first approximation, a mixture of two cargoes is considered hazardous when, under specified condition, the temperature rise of the mixture exceeds 25 °C or a gas is evolved. It is possible for the reaction of two cargoes to produce a product that is significantly more flammable or toxic than the original cargoes even though the reaction is non-hazardous from temperature or pressure considerations, although no examples of such a reaction are known at this time.

*Chart format*— There are different degrees of reactivity among the various cargoes. Many of them are relatively non-reactive: For example, aromatic hydrocarbons or paraffins. Others will form hazardous combinations with many groups: For example, the inorganic acids.

The cargo groups in the compatibility chart are separated into two categories: 1 through 22 are “Reactive Groups” and 30 through 43 are “Cargo Groups”. Left unassigned and available for future expansion are groups 23 through 29 and those past 43. Reactive Groups contain products which are chemically the most reactive; dangerous combinations may result between members of different Reactive Groups and between members of Reactive Groups and Cargo Groups. Products assigned to Cargo Groups, however, are much less reactive; dangerous combinations involving these can be formed only with members of certain Reactive Groups. Cargo Groups do not react hazardously with one another.

*Using the Compatibility Chart*— The following procedure explains how the compatibility chart should be used to find compatibility information: